

## **REMARKS**

Claims 1-30 are pending. In the above referenced Office Action, claims 1-30 stand rejected as being anticipated under 35 U.S.C. 102. Applicant respectfully traverses the rejections and requests a withdrawal of all rejections as set forth below.

Claims 1-5, 11-14, and 21-25 stand rejected under 35 USC 102(e) as being anticipated by Park et al. (US 2003/0153954, hereinafter "Park"). In the previous response, the Applicant articulated differences between the reference and the pending claims. In particular, Park fails to teach, among other things, extending a pacing interval between the delivered pacing pulse and a subsequently delivered pacing pulse based on the detection of intrinsic ventricular activity. The Examiner has responded in stating that Park discloses that during the resynchronization step 208 of Park the pacing interval is extended between the delivered pacing pulse and the subsequently delivered pacing pulse. However, Park teaches that the pacing rate is gradually reduced until the heart beats at an intrinsic rate or a selected base rate. In response to determination of the base or intrinsic rate, the tiered therapy activates overdrive pacing. Thus, in response to the detection of intrinsic activity, Park teaches increasing the pacing rate to an overdrive rate. As such, Park teaches away from the presently claimed invention including "extending a pacing interval between the delivered pacing pulse and a subsequently delivered pacing pulse based on the detection of intrinsic ventricular activity", e.g. as stated in claim 1. Applicant maintains that the rejection is improper and should be withdrawn.

Claims 1, 2, 4-12, 14-22, and 24-30 stand rejected under 35 USC 102(e) as being anticipated by Van Dam (US 6,836,682, hereinafter "van Dam"). Van Dam teaches a rate responsive pacing system using Q-T interval data. The Q-T interval data may be obtained whether the patient is being paced or has an intrinsic heartbeat. In the previous response, the Applicant submitted that Van Dam does not make a determination whether the Q-T interval measured during pacing contains intrinsic activity. As such, Van Dam does not teach, suggest or

imply detecting intrinsic ventricular activity within a sensed ventricular signal resulting from a delivered pacing pulse as stated in the pending claims. The Examiner has responded by indicating that in Figure 6 van Dam illustrates a flow diagram of a cardiac cycle including detecting a ventricular sense event resulting from a delivered pacing pulse (step 200).

At step 200, van Dam teaches “a Vsense represents a detected R-wave, and is determined in a known manner. . . . [I]t is also determined whether the event has indeed been a sense.” (col 11, lines 19-20) The routine starts at a Vevent, which may be a sense or pace. As such, the Vsense may be an intrinsic R-wave or an evoked R-wave resulting from a pacing pulse. If indeed the Vsense is a sensed event (i.e. not a paced event), the routine proceeds to determine if the event is of ectopic or AV origin (both being intrinsic events, i.e. not paced events). “If, at 203, it has been confirmed that the sense was intrinsic AV in origin, then at 205 the QT interval is measured” (col 11, lines 31-32). Van Dam teaches examining an intrinsic Vsense for determining its origin but does not teach or suggest examining a Vsense resulting from a pacing pulse for detecting intrinsic activity. Sensing R-waves that are intrinsic in origin is not new and methods for sensing intrinsic events are known in the art, as indicated by van Dam. Likewise, sensing a ventricular signal resulting from a delivered pacing pulse, in and of itself, is not new and is often referred to as evoked response sensing, e.g. as used in verifying that a pacing pulse effectively captured the heart.

The cited references are lacking, however, in teaching or suggesting “detecting intrinsic ventricular activity within the sensed ventricular signal” resulting from a pacing pulse, e.g. as stated in pending claim 1. The notion that simply sensing any ventricular event, intrinsic or resulting from a pacing pulse, includes “detecting intrinsic ventricular activity within the sensed ventricular signal” resulting from the pacing pulse is not an appropriate reading of the claim language. Furthermore, merely sensing intrinsic events is not an appropriate reading. The pending claims specify that intrinsic ventricular activity is detected

in the sensed ventricular signal resulting from the pacing pulse. Neither Park nor van Dam teach or suggest detecting intrinsic activity in a sensed signal resulting from a pacing pulse. Applicant maintains that the rejection is improper and should be withdrawn.

In accordance with the above discussion, Applicant asserts that the presently claimed invention is patentably distinguishable from the indicated references. Applicant respectfully asserts that the present claims are in condition for allowance and notice of the same is earnestly solicited.

Respectfully submitted,

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